

Contingencies of Self-Worth and Positive Emotions in College Students

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Spring 2014

**A thesis presented to the faculty of The University of North Carolina at Chapel Hill in  
partial fulfillment of the requirements for the Bachelor of Arts degree with Honors in  
Psychology**

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### **Abstract**

Unhealthy contingencies of self-worth, or areas in an individual's life which predicts rises and falls in self-esteem, such as appearance or academic competence, can lead to unfavorable outcomes, such as body image issues, financial problems, and low self-esteem and well-being. This study demonstrates how a simple writing task focused on a healthier contingency of self-worth such as family support can increase momentary positive emotions. Positive emotions can combat the negative consequences of an unhealthy contingency of self-worth by broadening an individual's momentary thought-action repertoires, and building on an individual's momentary and personal resources, leading them on an upward spiral of well-being. One hundred and nine participants were asked to complete a series of questionnaires and then write a short essay detailing a time when they felt especially supported by their families. They also completed two mazes as a test of broadened cognition. The results show that the experimental writing task significantly increased positive emotions in individuals who based their self-worth on healthy as well as unhealthy contingencies.

*Keywords:* positive emotions, contingencies of self-worth, cognition, self-esteem

### Contingencies of Self-Worth and Positive Emotions in College Students

Self-esteem is defined as “a global judgment about the worth or value of the self” (Rosenburg, 1965). Western society generally views high self-esteem as a marker of health in an individual. Self-esteem is seen as a valid measure of good adjustment and well-being. High self-esteem is correlated with effective self-regulation, while low self-esteem has been linked with aggression, depression, drug abuse, and poor performance in school (Breines, Crocker, & Garcia, 2008). However, the pursuit of high self-esteem does not always lead to positive outcomes, and comes at a high cost for those who seek self-worth in unhealthy ways. The domains in which individuals’ self-esteem is susceptible to disappointments and failures are known as contingencies of self-worth.

#### **Contingencies of Self-Worth**

Crocker and Wolfe (2001) identified seven distinct contingencies of self-worth in college students: God’s love, virtue, family support, competition, academic competence, appearance, and approval from others. These seven contingencies range from internal contingencies, which demonstrate intrinsic aspects of the self, to external contingencies, which are highly dependent on other people’s approval.

*God’s Love* – Individuals who base their self-worth on this contingency express commitment to their religious beliefs, and believe that they are valued and loved by God.

*Virtue* – Faithfulness to a moral code is essential to individuals who place their self-worth in this contingency. These individuals may see themselves as being virtuous individuals if they consistently adhere to their moral code.

*Family Support* – Although this contingency is based on support from others, the support and affection of close others –for most people – are relatively unconditional, and so individuals may see themselves as worthy of love and support.

*Competition* – Individuals base their self-worth on being better than others, either at tasks or simply being the superior individual in a relationship.

*Academic Competence* – Self-worth in this contingency is based on superiors' evaluations of one's abilities in schoolwork.

*Appearance* – Individuals base their self-worth on their physical appearance, and how others perceive their appearance.

*Approval from Others* – Self-worth is derived on approval and acceptance from others. One's perception of others' approval is more important than others' actual views of oneself.

In general, the more internal or unconditional contingencies – God's love, virtue, and family support – are associated with higher levels of well-being, and are correlated positively with self-esteem. On the other hand, the more external contingencies – competition, academic competence, appearance, and approval from others – have been linked to more unhealthy outcomes and lower, more unstable self-esteem as compared to the other three contingencies (Crocker, Luhtanen, Cooper, & Bouvrette, 2003).

Successes and failures in an individual's contingency of self-worth leads to increases and decreases in self-esteem (Crocker, 2002). Because people seek to increase their self-esteem, contingencies of self-worth serve a regulatory role in that they lead people to behaviors that will provide them with opportunities to succeed in their contingency (Crocker & Luhtanen, 2003). External contingencies are more difficult to fulfill because the individual is not in control of the judgment that will result in an increase or decrease of self-esteem.

**The Costs of Unhealthy Contingencies**

Unhealthy, external contingencies of self-worth demonstrate a positive correlation with many negative outcomes, including maladaptive behaviors, poor self-regulation, depressive symptoms, and financial problems. Basing one's self-esteem in competition or academic competence tends to lead to withdrawn effort and self-handicapping, in order to protect one's self-esteem in the face of failure (Crocker & Luhtanen, 2003). However, this could be maladaptive when the task at hand is important for the future, such as taking the GRE or a final exam. Crocker, Brook, Niiya, and Villacorta (2006) found that ability-contingent individuals focused on easily accomplished tasks in which they were certain they would succeed, but studied less on harder tasks in which they were unsure what the outcome would be. By creating an excuse for possible failure, individuals can avoid the sharp decrease in self-esteem in their contingency. Repeated poor performance, however, may lead to a downward spiral in both performance and self-worth. Furthermore, Crocker and Knight (2005) found that the stress and anxiety caused by the pressure to perform well undermines learning that may have occurred while preparing for and performing the task. They also found that when the stress and pressure become too much, the individual may simply disengage from the task.

Relationships with others may also be affected negatively when individuals place their self-worth in contingencies such as others' approval or appearance. These individuals are focused on themselves, and what others are thinking about them, instead of being present in the relationship and being sensitive to others' feelings (Crocker & Knight, 2005). Rather than appreciating the relationship for what it is, these individuals use their relationships to validate themselves. Appearance- and approval- contingent individuals also demonstrate less empathy and less of an ability to relate to others in a meaningful way (Crocker & Luhtanen, 2003).

Unhealthy relationships with others may also be exacerbated with a competition-contingent individual, as they may feel the need to bully others to gain a feeling of superiority (Crocker, 2002).

One's mental and physical health may also be at risk when placing one's self-worth in an external contingency. Chronic high levels of anxiety and stress, coupled with fluctuations in self-esteem are strong predictors of depressive symptoms in college students. The stress levels may also impact the immune system, and lead to the elevated release of cortisol, which is also linked to depression, as well as suppression of the immune system (Crocker & Knight, 2005). Physical health is further affected by engaging in maladaptive behaviors. Appearance-contingent individuals may seek to increase others' opinions of their appearance by engaging in 'cool' activities, such as smoking or drinking. Additionally, these individuals place heightened importance on their bodies, which may lead them to engage in dangerous diets or eating disorders (Crocker, 2002). Crocker and Luhtanen (2003) also found that the appearance contingency predicted social as well as financial problems, as appearance-contingent individuals may spend disproportionate amounts of money on cosmetics or clothing.

Although all of these negative effects are not exclusive to those individuals who place their self-worth in an unhealthy contingency, they are far less prevalent in individuals who place their self-worth in a healthy contingency (Crocker & Luhtanen, 2003). The pursuit of self-esteem in an unhealthy contingency could lead to psychological vulnerability and a decline in physical health (Crocker & Knight, 2005). Because of these negative effects, an intervention is needed for these individuals, to shift their contingency of self-worth to a healthier contingency. The way to do this may be through the use of positive emotions.

### **Positive Emotions**

Fredrickson's (2001) broaden-and-build theory of positive emotions states that positive emotions such as joy and gratitude can broaden people's momentary thought-action repertoires and build their enduring personal resources. These resources can be physical, intellectual, social, or psychological. Broadened cognition brought on by positive emotions lead to more effective coping strategies, including when dealing with failure, and expands what one sees as possible choices in difficult situations. Positive emotions trigger an upward spiral by broadening attention and cognition to create these coping strategies, which may lead to more stable self-esteem and self-worth (Fredrickson & Joiner, 2002). Through these effects on thinking patterns, the experience of positive emotions greatly increases the chances of feeling positive emotions again. All of these factors taken together form the upward spiral towards greater well-being and satisfaction with life.

Importantly, there is evidence to suggest that positive emotions can increase psychological resilience by undoing the effects of negative emotions (Fredrickson, 2000). The broaden-and-build theory predicts that broadening at the cognitive level leads to undoing the increased heart rate and blood pressure caused by negative emotions – such as the stress and anxiety caused by the pressure to perform well in a given contingency of self-worth. Mild joy and contentment have been proven to have these undoing effects (Fredrickson & Levenson, 1998; Fredrickson et al., 2000). Greater psychological resilience caused by positive emotions could mean that individuals who would initially want to give up on a task because they fear failure in a contingency that is important to them might try a different strategy after failure, or just keep trying until they reach their goal. People who are experiencing positive emotions show creative, flexible, and efficient patterns of thought (Isen & Daubman, 1984; Isen, Daubman, &

Nowicki, 1987; Isen & Means, 1983). This presents a much healthier alternative to self-handicapping and giving up on important goals.

Increased social resources caused by positive emotions such as gratitude and love lead to an increased social support network. Social support has been shown to be effective in mediating the effects of negative emotions, and is particularly important for self-esteem (Crocker, Luhtanen, Cooper & Bouvrette, 2003). Positive emotions also facilitate approach behavior and continued action. Individuals are also more likely to explore new situations, people, and objects (Fredrickson, 2001). Individuals who base their self-worth on unhealthy contingencies could benefit from becoming more socially sensitive, and this could dually act to lessen their anxiety about being accepted by others.

The healthy and positive effects of positive emotions could have significant implications for individuals who base their self-worth in an unhealthy contingency. Not only could positive emotions undo the effects of the pressure and stress they are under, but positive emotions could broaden their cognition, leading them to embrace another, healthier contingency of self-worth, and ultimately triggering an upward spiral of positive emotions and well-being. Positive emotions effects on resilience and coping strategies should lead to healthier behaviors in externally-contingent individuals, and lead to higher levels of emotional well-being (Fredrickson & Joiner, 2002).

### **Writing Tasks as Beneficial**

Intervention strategies that use positive emotions as the changing force work especially well in treating problems based in negative emotions, such as stress, anxiety, depression, aggression, and stress-related health problems (Fredrickson, 2000). Positive emotions can undo the narrowed and conditioned psychological and biological preparation for specific action caused



by negative emotions. Interventions aimed at finding positive meaning raise levels of health and well-being, and lead to the cultivation of positive emotions in the individual (Fredrickson, 2000).

Writing tasks have been shown to have a myriad of benefits for people who are high in anxiety and high in self-criticism. Troop, Chilcot, Hutchings, and Varnaite (2013) found that writing tasks meant to induce positive emotions led to a decrease in self-criticism, and an increase in self-reassurance and self-compassion. Expressive writing could serve as an avenue for individuals to reflect on their own feelings, and increase psychological well-being by taking the time to gain insight on themselves. In another study conducted by Nagurney (2013), no matter the valence induced, writing about an emotional experience was psychologically advantageous for participants asked to write about their experiences over three days.

A short-term intervention using positive emotions could therefore facilitate a long-term effect of a more positive mindset and healthier life. A writing task focused on participants' family support could induce positive emotions in a meaningful way, and remind participants of the support network they have. Perceptions of social support are strong predictors of adjustment to difficult or stressful life events (Cohen, 1992). Not only are people able to adjust to stress more effectively, but social support also buffers against the negative effects of stress on health (Wethington & Kessler, 1986). The presence of supportive social relationships in individuals' lives is essential to psychological well-being (Berkman, 1995). The nature of the support one receives and the benefits that follow have been studied, and there is evidence to suggest that perhaps the best kind of support one may receive is invisible – that is, support that is not necessarily interpreted as support by the receiver (Bolger et al., 2000). Perhaps by tapping into the invisible and visible support from the past, individuals may experience an increase in gratitude, love, joy, or any number of other positive emotions.

Past research on contingencies of self-worth has mainly focused on the negative effects of unhealthy contingencies of self-worth. In this study, I hypothesize that participants who write an essay on a time they felt supported by their families or close others will experience more positive emotions, satisfaction with life, and higher levels of self-esteem relative to participants who are asked to write a neutral essay. In addition, I hypothesize that participants who base their self-worth in an unhealthy contingency and are asked to write a positive essay will show more positive affect, satisfaction with life, and higher self-esteem relative to participants who base their self-worth in a healthy contingency, or were not asked to write the positive essay. Finally, I predict that participants in the experimental condition will experience broadened cognition as a result of the positive emotions, as reflected by completing a cognitive task faster after experiencing positive emotions than a cognitive task completed before they wrote the positive essay. Through this study, I hope to increase self-esteem, satisfaction with life, and positive affect in individuals who base their self-worth in unhealthy contingencies, and foster a change towards a healthier contingency of self-worth.

## **Method**

### **Participants**

Participants were recruited through the University of North Carolina at Chapel Hill's Psychology Research Participant Pool. Participants were required to be over 18 years of age, otherwise there were no exclusionary factors. 109 participants completed the study. Two participants were excluded for failing to comply with directions, for a total of 107 participants. 83 women and 24 men completed the study. 50% of participants were freshmen, 24.7% were sophomores, 7.4% were juniors, and 4.6% were seniors. 75% of participants were Caucasian, 13% were African American, 4.6% were Hispanic, 6.5% were Asian, and 0.9% were Native

American. Participants were compensated by receiving one course credit for their participation in the study.

## Measures

*Contingencies of Self-Worth Scale* – Crocker, Luhtanen, Cooper & Bouvrette, 2003. (See Appendix A). The Contingencies of Self-Worth scale consists of 35 statements – 5 statements regarding each contingency, such as, “My self-worth is influenced by how well I do on competitive tasks,” and “My self-worth is based on God’s love.” Participants are asked how much they agree with each statement on a scale from 1= strongly agree to 7= strongly disagree, with 7 items reverse scored. The research assistant scored this questionnaire immediately after completion. Participants who scored the highest on family support, virtue, and God’s Love, or any combination of the three were sorted into the Healthy Contingency condition, and participants who scored the highest in competition, appearance, academic competence, or approval from others were sorted into the Unhealthy Contingency condition. The Contingencies of Self-Worth subscales have high internal validities in this sample (family support  $\alpha = .84$ ; competition  $\alpha = .87$ ; appearance  $\alpha = .83$ ; God’s love  $\alpha = .96$ ; academic competence  $\alpha = .82$ ; virtue  $\alpha = .83$ ; approval from others  $\alpha = .82$ ).

*Ten Item Personality Inventory (TIPI)* – Gosling, Rentfrow, & Swann, 2003. (See Appendix B). The Ten Item Personality Inventory consists of ten items, which assess personality traits. Participants indicate the extent to which they agree or disagree with each pair of personality traits (e.g., extroverted, enthusiastic) on a scale from 1 = strongly disagree to 7 = strongly agree. The TIPI has an internal validity in this sample of  $\alpha = .60$ .

*Parental Bonding Instrument* – Wilhelm & Pargers, 1990. (See Appendix C). The Parental Bonding Instrument is a 24-item instrument in which participants are asked to evaluate if

statements are like their mother or father on a 1-4 scale from 1 = very like to 4 = very unlike. An example of an item would be, “Spoke to me with a warm and friendly voice.” The Parental Bonding Instrument has an internal validity in this sample of  $\alpha = .76$ .

*Self-Compassion Scale* – Neff, 2003. (See Appendix D). The Self-Compassion Scale is used in conjunction with the Modified Differential Emotions Scale to give a measure of well-being. The scale consists of 26 items such as, “I’m disapproving and judgmental about my own flaws and inadequacies,” which participants must then rate the extent to which they agree or disagree with the statement on a 1 – 5 scale where 1 = almost never to 5 = almost always. The Self-Compassion has an internal validity in this sample of  $\alpha = .92$ .

*God Image Inventory – Acceptance and Benevolence subscales* – Lawrence, 1997. (See Appendix E). The Acceptance and Benevolence subscales of the God Image Inventory together comprise of 24 statements about God such as, “I know I’m not perfect, but God loves me anyway.” Participants indicate the extent to which they agree or disagree with each statement on a 1 – 7 scale where 1 = strongly disagree to 7 = strongly agree. The Acceptance subscale has an internal validity of  $\alpha = .91$ , and the Benevolence subscale has an internal validity in this sample of  $\alpha = .92$ .

*Satisfaction with Life Scale* – Diener, Emmons, Larson, & Griffin, 1985. (See Appendix F). The Satisfaction with Life Scale consists of five items such as, “In most ways my life is close to ideal.” Participants use a scale from 1 = strongly disagree to 7 = strongly agree to indicate their agreement with each statement. The scale has an internal validity in this sample with  $\alpha = .82$  and  $.87$  before and after manipulation, respectively.

*Modified Differential Emotions Scale (mDES)* – Fredrickson, Tugade, Waugh & Larkin, 2003. (See Appendix G). The modified Differential Emotions Scale consists of 20 items asking

participants the extent to which they felt different feelings, such as amusement, anger, or guilt. Participants use a scale of 1 – 5, where 1 = very slightly or not at all to 5 = extremely to indicate the greatest amount that they experienced each of the feelings. Participants completed this measure twice, once asking for their level of emotions over the past two weeks, and the second time asking for their level of different emotions while completing the writing task. The Modified Differential Emotions Scale has an internal validity in this sample of  $\alpha = .79$  and  $.83$  before and after manipulation, respectively.

*Rosenberg Self-Esteem Scale* – Rosenberg, 1965. (See Appendix H). The Rosenberg Self-Esteem Scale consists of 10 items such as, “I feel that I am a person of worth, at least on an equal plane with others,” meant to evaluate their level of self-esteem. Participants are asked to indicate their agreement with each item on a 1 – 4 scale where 1 = strongly agree to 4 = strongly disagree. This scale has an internal validity in this sample of  $\alpha = .90$  and  $.85$  before and after manipulation, respectively.

*Prioritizing Positivity* – Catalino, L. (See Appendix I). This scale consists of 6 statements such as, “A priority for me is experiencing happiness in everyday life.” Participants indicate the extent to which they agree with each statement on a scale from 1 – disagree strongly to 9 = agree strongly. This scale has an internal validity in this sample of  $\alpha = .87$ .

Participants completed two mazes as a test of broadened cognition. (See Appendix J). Two mazes were pilot tested for equal difficulty, with Maze A ( $M = 93$  seconds) and Maze B ( $M = 91$  seconds) being confirmed as equally difficult. The mazes were counterbalanced throughout the study. Mazes have previously shown to be effective markers of cognition (Mohs, 1997).

**Procedure**

Participants were tested individually in a lab room. After providing informed consent, participants completed the Contingencies of Self-Worth Scale on paper to determine whether they fell into a healthy or unhealthy contingency. They were then randomly assigned into either the experimental condition, where they would write a positive essay, or the control condition, where they would write a neutral essay, thus creating a 2 x 2 experimental design. Participants then completed a series of questionnaires using an online survey system on individual computers. The questionnaires administered were the Ten Item Personality Inventory, the Parental Bonding Instrument, the Self-Compassion Scale, the God Image Inventory, the Satisfaction with Life Scale, the Modified Differential Emotions Scale, the Rosenberg Self-Esteem Scale, and the Prioritizing Positivity scale. Participants were timed completing a maze before moving onto the next part of the experiment as a measure of broadened cognition. The research assistant, who was standing next to the participant as they completed the task, collected participants' maze completion times. Participants were then asked to write one of two essays for ten minutes. The experimental group was instructed to spend 10 minutes writing an essay describing a time in their lives when they felt especially supported by their families or close others, and how it made them feel. The control group was instead instructed to spend 10 minutes writing an essay describing in detail the steps to constructing a house. Afterwards, participants completed more questionnaires – the Satisfaction with Life Scale, modified Differential Emotions Scale, and the Rosenberg Self-Esteem scale. They were also timed completing a second maze. Finally, participants were debriefed at the end of the 45-minute session.

## **Results**

Data was analyzed using SPSS, and outliers three or more standard deviations away from the group mean were removed prior to each statistical test.

### **Contingencies of Self-Worth Distribution**

The Contingencies of Self-Worth Scale was used to test participants' dominant contingency. Twenty-seven and a half percent of participants scored highest on academic competence, 23.9% of participants scored highest on family support, 11.9% of participants scored highest on competition, 10.1% of participants scored highest on God's love, 9.2% of participants scored highest on virtue, 3.7% of participants scored highest on appearance, and 3.7% of participants scored highest on approval from others. Five and a half percent of participants scored highest on two or more healthy contingencies, and 3.7% of participants scored highest on two or more unhealthy contingencies.

### **Pre-Manipulation Healthy-Unhealthy Contingency Group Differences**

Table 1 summarizes the group differences between the healthy and unhealthy groups prior to manipulation. Participants in the Unhealthy Contingencies group demonstrated significantly lower levels of emotional stability, common humanity, and mindfulness when compared to the Healthy group, but higher levels of self-judgment and over-identification. Participants in the Unhealthy group reported a higher baseline level of negative emotions prior to manipulation. No other significant differences were found during the baseline questionnaires. This data was used descriptively, and had no effect on subsequent analyses.

Table 1

*Participant Questionnaire T-Test Results in Unhealthy and Healthy Groups pre-Manipulation*

Questionnaire	Healthy	Unhealthy	t(105)	p
	M(SD)	M(SD)		
Ten Item Personality Inventory	--	--	--	--
Extraversion	4.48(1.37)	4.97(1.41)	-1.83	.071
Agreeableness	5.22(1.01)	4.88(1.24)	1.54	.126
Conscientiousness	5.61(1.05)	5.44(1.25)	.80	.426
Emotional Stability	4.95(1.08)	4.44(1.30)	2.20	.030*
Openness to Experience	5.17(1.04)	5.01(1.03)	.81	.423
Parental Bonding Instrument	--	--	--	--
Care	40.5(5.76)	39.8(6.29)	.58	.563
Overprotection	24.7(5.93)	26.1(7.31)	-1.04	.301
Self-Compassion Scale	3.15(.52)	2.83(.59)	2.93	.004*
Self-Kindness	3.13(.65)	2.91(.69)	1.69	.094
Common Humanity	3.43(.77)	3.02(.93)	2.45	.016*
Mindfulness	3.48(.66)	3.18(.68)	2.28	.025*
Self-Judgment	3.03(.68)	3.33(.82)	-2.09	.039*
Isolation	3.07(.72)	3.32(.90)	-1.61	.111
Over-Identified	3.02(.79)	3.44(.84)	-2.67	.009*
God Image Inventory	--	--	--	--
Benevolence	4.22(.53)	4.01(.65)	1.83	.071
Acceptance	4.06(.55)	3.99(.70)	.514	.608
Satisfaction with Life	26.3(4.53)	26.0(4.27)	.416	.678
Modified Differential Emotions Scale	--	--	--	--
Positive Emotions	2.79(.65)	2.59(.78)	1.45	.150
Negative Emotions	1.02(.52)	1.28(.74)	-2.14	.035*
Prioritizing Positivity	7.06(1.29)	6.65(1.42)	1.54	.126
Rosenberg Self-Esteem Scale	21.8(4.43)	21.9(5.39)	-.10	.924

Note. Healthy N= 53, Unhealthy N= 52

\* $p < .05$



**Experimental-Control Group Differences Post-Manipulation**

An independent samples t-test was used to test differences in levels of positive and negative between the experimental and control group post-manipulation from the Modified Differential Emotions Scale. The experimental group ( $M = 2.37$ ,  $SD = .83$ ) experienced significantly higher levels of positive emotions than the control group ( $M = 1.07$ ,  $SD = .85$ ),  $t(105) = 7.96$ ,  $p < .001$ . Additional analysis on discrete emotions from the Modified Differential Emotions Scale revealed that the experimental group experienced significantly higher feelings of awe  $t(104) = 4.01$ ,  $p < .001$ ; gratitude  $t(104) = 9.38$ ,  $p < .001$ ; hope  $t(105) = 7.93$ ,  $p < .001$ ; inspiration  $t(105) = 7.93$ ,  $p < .001$ ; gladness  $t(105) = 7.39$ ,  $p < .001$ ; love  $t(105) = 12.98$ ,  $p < .001$ ; and pride  $t(105) = 6.33$ ,  $p < .001$  while they were writing the experimental essay.

Levels of negative emotions post-manipulation collected through the Modified Differential Emotions scale were also tested using an independent samples t-test. Participants in the experimental condition ( $M = .44$ ,  $SD = .65$ ) experienced significantly higher levels of negative emotions post-manipulation than the control group ( $M = .23$ ,  $SD = .34$ ),  $t(205) = 2.10$ ,  $p = .039$ . Additional analyses isolating the discrete emotion ‘sadness’ revealed that feelings of sadness was driving this effect  $t(105) = 3.87$ ,  $p < .001$ . A t-test comparing negative emotions between the experimental ( $M = .23$ ,  $SD = .39$ ) and control group ( $M = .41$ ,  $SD = .63$ ) post-manipulation not including sadness was not significant  $t(105) = -1.73$ ,  $p = .086$ .

A linear regression analysis was performed on the data from the Satisfaction with Life scale post-manipulation, controlling for baseline levels of satisfaction with life to test if there were significant differences between the experimental and control group. Participant condition did not significantly predict satisfaction with life scores post-manipulation,  $b = .174$ ,  $t(103) = .712$ ,  $p = .478$ .

Another linear regression analysis was performed on the data from the Rosenberg Self-Esteem scale post-manipulation, controlling for baseline levels of self-esteem to test if there were significant differences between the experimental and control group due to manipulation. Participant condition did not significantly predict self-esteem scores post-manipulation,  $b = .120$ ,  $t(104) = .632$ ,  $p = .529$ .

### **Between-Group Differences Post-Manipulation**

A Univariate Analysis of Variance (ANOVA) test was used to test whether the Unhealthy Experimental group experienced more positive emotions than the other three conditions. The analysis revealed a main effect for experimental/control condition,  $F(3, 103) = 65.01$ ,  $p < .001$ . There was no significant main effect for contingency health,  $F(3,103) = 1.13$ ,  $p = .291$ . There was no significant interaction between condition and contingency  $F(3, 103) = 3.29$ ,  $p = .072$ . Pairwise comparisons showed that the Healthy Experimental ( $M = 2.30$ , 95% CI [1.98, 2.62]) and Unhealthy Experimental ( $M = 2.42$ , 95% CI [2.11, 2.73]) groups experienced significantly more positive emotions post-manipulation,  $p < .05$ .

A Univariate ANOVA was used to test whether the Unhealthy Experimental group experienced more negative emotions than the other three conditions. The ANOVA revealed a main effect for experimental/control condition,  $F(3,103) = 4.49$ ,  $p = .036$ . There was no significant main effect for contingency health,  $F(3,103) = .592$ ,  $p = .443$ . There was also no significant interaction between condition and contingency health,  $F(3,103) = 1.34$ ,  $p = .250$ . Pairwise comparisons revealed that the Healthy Experimental group ( $M = .54$ , 95% CI [.33, .73]) and Unhealthy Experimental group ( $M = .34$ , 95% CI [.15, .54]) experienced significantly higher levels of negative emotions post-manipulation.

A Univariate ANOVA tested whether the Unhealthy Experimental group experienced higher levels of satisfaction with life post-manipulation than the other three groups, controlling for baseline levels of satisfaction with life. No significant main effect was found for experimental/control condition,  $F(3,103) = .143, p = .706$ . There was also no significant main effect for contingency health,  $F(3,103) = .098, p = .755$ . There was no significant main effect for the interaction of condition and contingency health,  $F(3,103) = .024, p = .878$ .

Lastly, a Univariate ANOVA was also used to test if the Unhealthy Experimental group scored significantly higher than the other three groups on self-esteem, controlling for baseline levels of self-esteem. No significant main effect was found for experimental/control condition,  $F(3,104) = .786, p = .377$ . There was also no significant main effect for contingency health,  $F(3, 104) = .289, p = .838$ . Lastly, there was no significant main effect for the interaction of condition and contingency health,  $F(3,104) = .289, p = .592$ .

### **Differences in Broadened Cognition**

A linear regression analysis was performed to test for differences between the experimental and control group's performance on the second maze, controlling for their completion time from the first maze, which would give an indication of broadened cognition. Participant condition did not significantly predict completion times on the second maze,  $b = 1.32, t(94) = .524, p = .602$ .

### **Discussion**

This study hypothesized that the participants who were asked to write an essay about a time they felt supported by their family would experience more positive emotions, satisfaction with life, and higher levels of self-esteem relative to participants who are asked to write a neutral

essay. In addition, it was hypothesized that participants who base their self-worth in an unhealthy contingency and were asked to write a positive essay would show more positive affect, satisfaction with life, and higher levels of self-esteem relative to participants who base their self-worth in a healthy contingency, or were not asked to write the positive essay. Lastly, this study predicted that participants in the experimental condition would experience broadened cognition as a result of the positive emotions, and would complete a cognitive task faster after experiencing positive emotions than a cognitive task completed before they wrote the positive essay.

Participants in the Unhealthy Contingency group did, in fact, show many of the negative characteristics associated with individuals who place their self-worth in an unhealthy contingency. They reported themselves as being less emotionally stable, more self-judgmental, and less mindful than participants who based their self-worth in a healthy contingency. In addition, they reported themselves as having more negative emotions over a two-week period prior to the experiment. These findings concur with the evidence presented by Crocker (2003), and reinforce the idea that there should be an intervention for individuals who place their self-worth in an unhealthy contingency.

I hypothesized that participants who were randomly assigned to write an essay on Family Support, relative to a neutral topic would demonstrate higher levels of positive affect, satisfaction with life, and self-esteem after having written the essay about their families. Participants did show a higher amount of positive emotions after having written the experimental essay. This finding agrees with the evidence from Nagurney (2013) with regards to emotional writing. Having a chance to reflect upon the good in one's life instead of concentrating about outside criticism or how one looks in the eyes of others inspired feelings of gratitude, hope, love, pride, awe, and inspiration. These emotions could be a stepping-stone towards feeling more of

these emotions in the future (Fredrickson, 2001). In this finding, the first hypothesis was partially supported. However, participants who wrote the experimental essay did not experience higher self-esteem or satisfaction with life relative to those participants who wrote the control essay. This could be for a variety of reasons. A short 10-minute manipulation may not have been powerful enough to change state self-esteem. Participants may also have felt awkward sharing a time they felt supported by their families in a lab setting where they knew a research assistant would see their work when they finished. Additionally, participants looking for external reinforcement could have been thinking more about writing more material to appear smarter or more thoughtful to the research assistant, and thereby not allowing any meaningful effects to self-esteem or satisfaction with life.

In addition, the experimental condition also reported higher levels of negative emotions following the manipulation. This could be because in writing about social support, individuals are reminded of their need for social support, and feel embarrassed and needy in remembering an event when they were in need of someone else's help. This finding fits in with the knowledge that invisible support is the best kind of social support, and that visible support makes salient a vulnerable time in an individual's life (Bolger et al., 2000). Especially for individuals who base their self-worth in an unhealthy contingency, being in need of someone else's help could have been detrimental to their self-esteem because they could have felt judged for the event. Individuals who place their self-worth in a healthy contingency and experienced higher levels of sadness could have been reminded of home, and felt homesick for their homes and families after having written the essay. Fifty percent of the participants in this study were freshman at a large university and this study was run during the fall semester; it could be that these individuals had not yet successfully formed close bonds with their classmates or roommates, and were reminded

of their loneliness during the writing task. They could have been feeling disconnected to their environment, and longed for familiarity during the task, increasing levels of negative emotions.

I also hypothesized that participants in the unhealthy group and experimental condition would experience more positive emotions, higher self-esteem and satisfaction with life than participants in the other three conditions, because they would have more to gain from the writing task. Although I found that the two experimental groups had higher levels of positive emotions than participants in the control group, no other significant differences were found. This finding confirms the higher levels of positive emotions found in the earlier results, and also confirms the findings that emotional writing tasks raise levels of positive emotions relative to writing tasks that do not have an emotional basis (Nagurney, 2013). This could be due to the strong emotional nature of the writing task, which could bring strong, positive feelings about their family or close others to the surface. It was not found that participants in the Unhealthy Experimental condition had higher levels of positive emotions, self-esteem, or satisfaction with life relative to the other three conditions. Thus, my second hypothesis was both partially confirmed and unconfirmed.

Finally, I predicted that participants who wrote the experimental essay about their families or close others would experience broadened cognition as a result of their positive emotions after the essay, as predicted by the broaden-and-build theory of positive emotions (Fredrickson, 2001). There were, however, no significant differences found between the experimental and control group when it came to maze completion times. This could be because there needed to be a higher or more prolonged level of positive emotions to reap the benefits of broadened cognition. It could also be that the mazes were equally too easy to have found any significant differences in completion times. These mazes may not have been well suited to be used as a measure of broadened cognition. Because exact mazes used in other studies were not

published, these mazes were computer generated. Although previous studies have found mazes to be effective measures of cognition (Mohs et al., 1997), these mazes may not have been complex enough to capture change from one time to the next. Another possibility is that the effects of broadened cognition due to the continued effects of positive emotions build on each other, and the slight increase in broadened cognition could just have been small enough to be missed by the statistical test. Thus, my third hypothesis regarding broadened cognition was not supported by the data.

One limitation of this study is that due to time constraints, the positive-emotion induction was not as long or as powerful as it could have been. In the future, it would be interesting to see if a prolonged writing task focusing on positive emotions, such as keeping a diary over a period of weeks, would have more of an effect on the emotional health of participants who base their self-worth in an unhealthy contingency.

Another limitation is that this study was conducted on relatively healthy, predominantly White college students, which follows in the footsteps of studies before it. Thus, effects of unhealthy contingencies or of positive emotion inductions that are tied to cultural differences somehow have been missed. It would be better and more informative to do a study on contingencies of self-worth that focuses on a culturally diverse population big enough to separate out the effects of culture, such as the importance of social support within different cultures.

A final limitation would be that the study relies on self-report measures, which are subject to participants attempting to answer in a certain way for the research assistant. In addition, participants may have answered more favorably about themselves in an effort to feel better about themselves after the experiment, or protect themselves from facing their emotional problems or low self-esteem, for example.

In addition to the future directions discussed above, I also think that testing a variety of positive-emotion inductions with participants who base their self-worth in an unhealthy contingency would be advantageous. For example, there is evidence that trying an alternative technique such as Loving-Kindness Meditation over a longer period of time, such as over a period of months, may have a more direct and long-lasting effect on emotional well-being than the intervention outlined in this study (Feldman, Greeson, & Senville, 2010; Fredrickson et al., 2008; Hofmann, Grossman, & Hinton, 2011). Alternative interventions could potentially lead to the upward spiral of well-being that may eventually cause an individual who had previously based their self-worth in an unhealthy contingency to base their self-worth in a healthy contingency in the future.



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## Appendix A

### Contingencies of Self-Worth Scale

Please respond to each of the following statements by selecting a response using the scale from “1 = Strongly disagree” to “7 = Strongly agree.” If you haven’t experienced the situation described in a particular statement, please answer how you think you would feel if that situation occurred.

- \_\_\_ When I think I look attractive, I feel good about myself.
- \_\_\_ My self-worth is based on God’s love.
- \_\_\_ I feel worthwhile when I perform better than others on a task or skill.
- \_\_\_ My self-esteem is unrelated to how I feel about the way my body looks.
- \_\_\_ Doing something I know is wrong makes me lose my self-respect.
- \_\_\_ I don’t care if other people have a negative opinion about me.
- \_\_\_ Knowing that my family members love me makes me feel good about myself.
- \_\_\_ I feel worthwhile when I have God’s love.
- \_\_\_ I can’t respect myself if others don’t respect me.
- \_\_\_ My self-worth is not influenced by the quality of my relationships with my family members.
- \_\_\_ Whenever I follow my moral principles, my sense of self-respect gets a boost.
- \_\_\_ Knowing that I am better than others on a task raises my self-esteem.
- \_\_\_ My opinion about myself isn’t tied to how well I do in school.
- \_\_\_ I couldn’t respect myself if I didn’t live up to a moral code.
- \_\_\_ I don’t care what other people think of me.
- \_\_\_ When my family members are proud of me, my sense of self-worth increases.
- \_\_\_ My self-esteem is influenced by how attractive I think my face or facial features are.
- \_\_\_ My self-esteem would suffer if I didn’t have God’s love.
- \_\_\_ Doing well in school gives me a sense of self-respect.
- \_\_\_ Doing better than others gives me a sense of self-respect.
- \_\_\_ My sense of self-worth suffers whenever I think I don’t look good.
- \_\_\_ I feel better about myself when I know I’m doing well academically.
- \_\_\_ What others think of me has no effect on what I think about myself.
- \_\_\_ When I don’t feel loved by my family, my self-esteem goes down.
- \_\_\_ My self-worth is affected by how well I do when I am competing with others.
- \_\_\_ My self-esteem goes up when I feel that God loves me.
- \_\_\_ My self-esteem is influenced by my academic performance.
- \_\_\_ My self-esteem would suffer if I did something unethical.
- \_\_\_ It is important to my self-respect that I have a family that cares about me.
- \_\_\_ My self-esteem does not depend on whether or not I feel attractive.
- \_\_\_ When I think that I’m disobeying God, I feel bad about myself.
- \_\_\_ My self-worth is influenced by how well I do on competitive tasks.
- \_\_\_ I feel bad about myself whenever my academic performance is lacking.
- \_\_\_ My self-esteem depends on whether or not I follow my moral/ethical principles.
- \_\_\_ My self-esteem depends on the opinions others hold of me.

Crocker, J., Luhtanen, R.K., Cooper, M.L., & Bouvrette, A. (2003). Contingencies of self-worth in college students: Theory and measurement. *Journal of Personality and Social Psychology*, 85, 894-908.

## Appendix B

### Big Five (TIPI – Ten Item Personality Inventory)

Here are a number of personality traits that may or may not apply to you. Please indicate the extent to which you agree or disagree with each statement. You should rate the extent to which the pair of traits apply to you, even if one characteristic applies more strongly than the other.

- 1 – Strongly disagree
- 2 – Disagree
- 3 – Somewhat disagree
- 4 – Neither disagree nor agree
- 5 – Somewhat agree
- 6 – Agree
- 7 – Strongly agree

\_\_\_ Extraverted, enthusiastic  
\_\_\_ Critical, quarrelsome  
\_\_\_ Dependable, self-disciplined  
\_\_\_ Anxious, easily upset  
\_\_\_ Open to new experiences, complex  
\_\_\_ Reserved, quiet  
\_\_\_ Sympathetic, warm  
\_\_\_ Disorganized, careless  
\_\_\_ Calm, emotionally stable  
\_\_\_ Conventional, uncreative

Gosling, S.D., Rentfrow, P.J., & Swann, W.B. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality*, 37, 504-528.

## Appendix C

### Parental Bonding Instrument

This questionnaire lists various attitudes and behaviors of parents. As you remember your **mother/father** in your first 16 years, would you please click the most appropriate option next to each question.

- Very like
- Moderately like
- Moderately unlike
- Very unlike

- \_\_\_ Spoke to me with a warm and friendly voice.
- \_\_\_ Did not help me as much as I needed.
- \_\_\_ Let me do those things I liked doing.
- \_\_\_ Seemed emotionally cold to me.
- \_\_\_ Appeared to understand my problems and worries.
- \_\_\_ Was affectionate to me.
- \_\_\_ Liked me to make my own decisions.
- \_\_\_ Did not want me to grow up.
- \_\_\_ Tried to control everything I did.
- \_\_\_ Invaded my privacy.
- \_\_\_ Enjoyed talking things over with me.
- \_\_\_ Frequently smiled at me.
- \_\_\_ Tended to baby me.
- \_\_\_ Did not seem to understand what I needed or wanted.
- \_\_\_ Let me decide things for myself.
- \_\_\_ Made me feel I wasn't wanted.
- \_\_\_ Could make me feel better when I was upset.
- \_\_\_ Did not talk with me very much.
- \_\_\_ Tried to make me dependent on her.
- \_\_\_ Felt I could not look after myself unless she was around.
- \_\_\_ Gave me as much freedom as I wanted.
- \_\_\_ Was overprotective of me.
- \_\_\_ Did not praise me.
- \_\_\_ Let me dress in any way I pleased.

Wilhelm K and Pargers G (1990). "Reliability of the parental bonding instrument and intimate bond measure scales." Aust N Z J Psychiatry 24(2): 199-202.



## Appendix D

### Self-Compassion Scale

Below are 26 statements that may or may not apply to you. . Please indicate the extent to which you agree or disagree with each statement.

- 1 – Almost never
- 2
- 3
- 4
- 5 – Almost always

- \_\_\_ I'm disapproving and judgmental about my own flaws and inadequacies.
- \_\_\_ When I'm feeling down I tend to obsess and fixate on everything that's wrong.
- \_\_\_ When things are going badly for me, I see the difficulties as part of life that everyone goes through.
- \_\_\_ When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
- \_\_\_ I try to be loving towards myself when I'm feeling emotional pain.
- \_\_\_ When I fail at something important to me I become consumed by feelings of inadequacy.
- \_\_\_ When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- \_\_\_ When times are really difficult, I tend to be tough on myself.
- \_\_\_ When something upsets me I try to keep my emotions in balance.
- \_\_\_ When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- \_\_\_ I'm intolerant and impatient towards those aspects of my personality I don't like.
- \_\_\_ When I'm going through a very hard time, I give myself the caring and tenderness I need.
- \_\_\_ When I'm feeling down, I tend to feel like most other people are probably happier than I am.
- \_\_\_ When something painful happens I try to take a balanced view of the situation.
- \_\_\_ I try to see my failings as part of the human condition.
- \_\_\_ When I see aspects of myself that I don't like, I get down on myself.
- \_\_\_ When I fail at something important to me I try to keep things in perspective.
- \_\_\_ When I'm really struggling, I tend to feel like other people must be having an easier time of it.
- \_\_\_ I'm kind to myself when I'm experiencing suffering.

Neff, K.D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250. doi: 10.1080/15298860309027

## Appendix E

### God Image Inventory – Acceptance and Benevolence Subscales

Below are 26 statements that may or may not apply to you. . Please indicate the extent to which you agree or disagree with each statement.

- \_\_\_ I imagine God to be rather formal, almost standoffish.
- \_\_\_ I am sometimes anxious about whether God still loves me.
- \_\_\_ I am confident of God's love for me.
- \_\_\_ I know I'm not perfect, but God loves me anyway.
- \_\_\_ I have sometimes felt that I have committed the unforgivable sin.
- \_\_\_ I think of God as more compassionate than demanding.
- \_\_\_ God's love for me has no strings attached.
- \_\_\_ Even when I do bad things, I know God still loves me.
- \_\_\_ I think God even loves atheists.
- \_\_\_ God loves me only when I perform perfectly.
- \_\_\_ God loves me regardless.
- \_\_\_ I can't imagine anyone God couldn't love.
- \_\_\_ God can easily be provoked by disobedience.
- \_\_\_ I often worry about whether God can love me.
- \_\_\_ God is looking for a chance to get even with me.
- \_\_\_ God's mercy is for everyone.
- \_\_\_ God's love for me is unconditional.
- \_\_\_ I think God only loves certain people.
- \_\_\_ Even if my beliefs about God were wrong, God would still love me.
- \_\_\_ I am not good enough for God to love.
- \_\_\_ God's compassion knows no religious boundaries.
- \_\_\_ Running the world is more important to God than caring about people.
- \_\_\_ I think God must enjoy getting even with us when we deserve it.
- \_\_\_ I sometimes think that not even God could love me.

Lawrence, Richard T. (1997). Measuring the Image of God: The God Image Inventory and the God Image Scales. *Journal of Psychology and Theology*, 25(2), 214-226.

**Appendix F****Satisfaction with Life Scale\***

Below are five statements that you may agree or disagree with. Using the 1 – 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 – Strongly agree
- 6 – Agree
- 5 – Slightly agree
- 4 – Neither agree nor disagree
- 3 – Slightly disagree
- 2 – Disagree
- 1 – Strongly disagree

\_\_\_ In most ways my life is close to my ideal.

\_\_\_ The conditions of my life are excellent.

\_\_\_ I am satisfied with my life.

\_\_\_ So far I have gotten the important things I want in life.

\_\_\_ If I could live my life over, I would change almost nothing.

Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, 71-75.

## Appendix G

### Modified Differential Emotions Scale\*

Please rate how you felt while writing the essay. Use the 0-5 scale below to indicate the greatest amount that you experienced each of the following feelings.

- 1 – Very slightly or not at all
- 2 – A little
- 3 – Moderately
- 4 – Quite a bit
- 5 – Extremely

\_\_\_What is the most amused, fun-loving, silly you felt?

\_\_\_What is the most angry, irritated, or annoyed you felt?

\_\_\_What is the most ashamed, humiliated, or disgraced you felt?

\_\_\_What is the most awe, wonder, or amazement you felt?

\_\_\_What is the most contemptuous, scornful, or disdainful you felt?

\_\_\_What is the most disgust, distaste, or revulsion you felt?

\_\_\_What is the most embarrassed, self-conscious, or blushing you felt?

\_\_\_What is the most grateful, appreciative, or thankful you felt?

\_\_\_What is the most guilty, repentant, or blameworthy you felt?

\_\_\_What is the most hate, distrust, or suspicion you felt?

\_\_\_What is the most hopeful, optimistic, or encouraged you felt?

\_\_\_What is the most inspired, uplifted, or elevated you felt?

\_\_\_What is the most interested, alert, or curious you felt?

\_\_\_What is the most joyful, glad, or happy you felt?

\_\_\_What is the most love, closeness, or trust you felt?

\_\_\_What is the most proud, confident, or self-assured you felt?

\_\_\_What is the most sad, downhearted, or unhappy you felt?

\_\_\_What is the most scared, fearful, or afraid you felt?

\_\_\_What is the most serene, content, or peaceful you felt?

\_\_\_What is the most stressed, nervous, or overwhelmed you felt?

## Appendix H

### Prioritizing Positivity

In the following questions, we consider **positive emotions** to include amusement, awe, excitement, gratitude, hope, interest, joy, love, pride, serenity, and contentment.

We consider **negative emotions** to include anger, anxiety, shame, disinterest, disgust, embarrassment, guilt, hate, sadness, and fear.

Using the scale below, please select a response from 1 to 9.

- 1 – Disagree Strongly
- 2 – Disagree Mostly
- 3 – Disagree Somewhat
- 4 – Disagree Slightly
- 5 – Neither Disagree or Agree
- 6 – Agree Slightly
- 7 – Agree Somewhat
- 8 – Agree Mostly
- 9 – Agree Strongly

\_\_\_ A priority for me is experiencing happiness in everyday life.

\_\_\_ I look for and nurture my positive emotions

\_\_\_ What I decide to do with my time outside of work is influenced by how much I might experience positive emotions.

\_\_\_ I structure my day to maximize my happiness.

\_\_\_ My major decisions in life are influenced by how much I might experience positive emotions.

\_\_\_ I admire people who make their decisions based on the happiness they will gain.

## Appendix I

### Rosenberg Self-Esteem Scale\*

Below is a list of statements dealing with your general feelings about yourself. Using the 1 - 4 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 1 – Strongly Agree
- 2 – Agree
- 3 – Disagree
- 4 – Strongly Disagree

\_\_\_ I feel that I am a person of worth, at least on an equal plane with others.

\_\_\_ I feel that I have a number of good qualities.

\_\_\_ All in all, I am inclined to feel that I am a failure.

\_\_\_ I am able to do things as well as most other people.

\_\_\_ I feel I do not have much to be proud of.

\_\_\_ I take a positive attitude toward myself.

\_\_\_ On the whole, I am satisfied with myself.

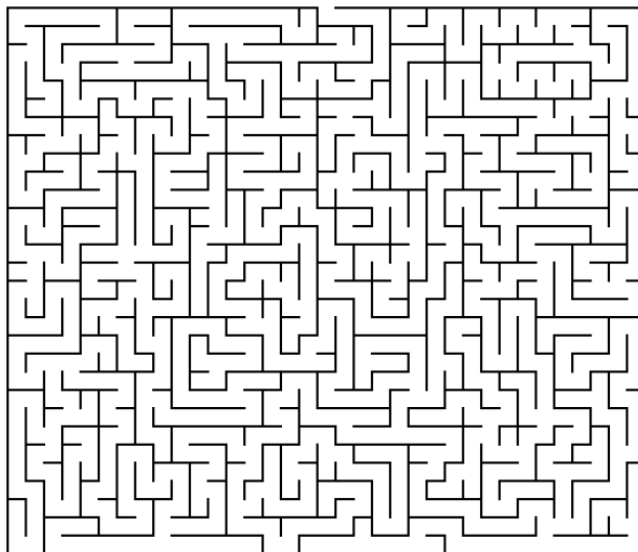
\_\_\_ I wish I could have more respect for myself.

\_\_\_ I certainly feel useless at times.

\_\_\_ At times I think I am no good at all.

**Appendix J**

**Maze A**



**Maze B**

